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Planning for Reservoir Maintenance
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Public water systems routinely conduct maintenance activities at drinking water reservoirs. If the maintenance work is not controlled properly, there can be short-term or long-term damage to wetlands, streams or ponds, floodplain, fisheries, state and federal rare and endangered species habitat, drinking water sources, and other resources.

The purpose of this guidance is to discuss steps that should be taken to identify and control impacts to natural resources and to describe local, state and federal permits that may be required for maintenance projects. The Massachusetts Wetlands Protection Act, MGL Chapter 131, section 40, for example, exempts maintenance activities at structures or facilities used to provide utilities, including water, to the public, as long as the work does not substantially change or enlarge the structure or facility. Reservoirs are considered to be structures for the purposes of the exemption. Dredging to increase normal capacity is not exempt. **The exemption does not contain conditions for performing the work, however, conducting maintenance activities in a manner that has negative impacts to resources may result in a violation of the Wetlands Protection Act and other applicable laws.**

To help avoid problems, the following six steps should be considered.

1. Determine the **types of maintenance** needed during the course of the year or over several years.
2. Determine the **potential impacts** of the maintenance work on other resources.
3. Select appropriate **protection measures** to control impacts to resources.
4. Maintain **communication** with the local Conservation Commission and regulatory agencies.
5. Obtain any required **local, state and federal permits**.
6. Practice long-term **watershed protection** to minimize the impacts of land uses on the reservoir.

1. Types of Maintenance

Maintenance activities may include removing silt and debris upstream of a dam, dam or spillway repairs, clearing shoreline vegetation, removing nuisance aquatic vegetation, managing eutrophication, dredging to restore depth, and other in-lake work. Any of these activities may include partial or complete drawdown of the reservoir.

2. Potential Impacts

Potential impacts depend upon several factors such as the work being undertaken, the time of year, and the other uses of the watershed.

Releasing sediment-laden waters downstream can *lower water quality below standards* and *affect fisheries and wildlife habitat (including endangered species) and other water withdrawals.* Increasing turbidity can also *interfere with disinfection* at water supplies downstream.

Releasing too much water too fast or with precipitation events can *damage public and private property (including homes and roadways) and affect water users (including in-stream uses, shore recreation and withdrawals).*

Creating low flow or no discharge from the reservoir can *affect downstream water users, fisheries, other wildlife, recreation, and the hydrology of wetland systems along the waterway.*

In addition to avoiding impacts, the Massachusetts Surface Water Quality Standards, 314 CMR 4.00, must be maintained.

3. Protection Measures

Using appropriate erosion controls, dewatering or diversion techniques and other protection measures can help to ensure a successful project. Conditions that are usually included in 401 Water Quality Certifications and suggested best management practices for dredging projects are described on page six. Some typical protection measures are listed below.

Typical Protection Measures

use siltation controls to settle solids discharged from the work area & to prevent erosion	implement spill prevention measures
manipulate the dam over time to control the water level	refuel & service equipment away from resource areas
be aware of downstream areas prone to flooding, including road crossings, when conducting a drawdown or dewatering; minimize drawdown time	talk with wildlife officials to avoid interfering with stocking programs & spawning or other critical lifecycle periods*
address the needs of watershed users & water resources	avoid impacts to rare or endangered species
plan work to avoid seasonal rains or droughts	avoid power washing

*Refer to: *Drawdown Performance Standards for the Protection of Fish and Wildlife Resources,* Mass. Fish & Game, September 2002.

4. Communication

Contact local, state and federal regulatory agencies early in the planning process to obtain information about required permits, application materials, length of the review process, and potential permit requirements. The next section provides a brief overview of some permit processes.

If the maintenance activities are exempt from the Mass. Wetlands Protection Act, provide updates to the local Conservation Commission so that the members are aware of the work. They may be able to provide recommendations on protection measures for certain kinds of work. It is also important to keep other local officials and abutters updated about activities.

5. Local, State and Federal Permits

Depending upon the scope and scale of the proposed work in the reservoir and/or the adjacent wetlands or other resource areas, local, state and federal permits, or approvals, may be required. These permits, or approvals, are described briefly in this section.

Dam Safety, 302 CMR 10.00

Jurisdiction: any dam constructed, altered or used to store water in Massachusetts
Applicability: review and approval of plans for dam construction, alteration, modification, repair, enlargement
Forms: call for forms
Website: under construction
Contact: Department of Conservation & Recreation's Office of Dam Safety, 508-792-7716

[Note: The information provided in the next section was adapted from *ENVIRONMENTAL PERMITTING IN MASSACHUSETTS*, a document prepared by the Massachusetts Office of Coastal Zone Management (CZM) in 2003. The complete document can be found at CZM's web site, www.state.ma.us/czm.]

Massachusetts Environmental Policy Act (MEPA), 301 CMR 11.00

Jurisdiction: projects requiring a state environmental license or permit or that have state funding
Applicability: It is important to review the complete list of MEPA thresholds for applicability to a particular proposal. No state permits can be issued until the MEPA review is complete. Examples of threshold activities related to reservoir work include, but are not limited to:

- ✓ alteration of 25 or more acres of land;
- ✓ alteration of designated significant habitat, and/or taking of endangered or threatened species or species of special concern;
- ✓ alteration of 1,000 s.f. of salt marsh or Outstanding Resource Waters (ORWs), such as reservoirs;
- ✓ alteration of 5,000 s.f. of bordering or isolated vegetated wetlands;
- ✓ projects proposed within an Area of Critical Environmental Concern (ACEC).

Forms: Environmental Notification Form at www.state.ma.us/envir/mepa/thirdlevelpages/downloads.htm
Website: www.state.ma.us/envir/mepa **Contact:** MEPA Office, 617-626-1020

401 Water Quality Certification Program, 314 CMR 4.00, Surface Water Quality Standards; 314 CMR 9.00, 401 Water Quality Certification

Jurisdiction: dredge, excavation or fill projects in waters and wetlands subject to state and federal jurisdiction if a federal permit is required for the project
Applicability: If a project requires dredging more than 100 cubic yards of material, or will result in the loss of more than 5,000 square feet of wetlands, alter any salt marsh, or discharge dredged material or fill to an ORW, 401 Water Quality Certification is required from DEP. This Certification represents the state's assurance that project activities will not adversely affect water quality.
Forms: BRP WW 07, 08, 09 Water Quality Certifications, Dredging Projects and BRP WW 10, 11 Water Quality Certifications, Excavation and Fill Projects at www.state.ma.us/dep/appkits/forms.htm.
Website: www.state.ma.us/dep/consumer/protwet.htm.
Contact: DEP Water Quality Certification Program, 617-292-5695.

Wetlands Protection Act and Rivers Protection Act (WPA), MGL Chapter 131, section 40**,** 310 CMR 10.00

Jurisdiction: any wetland, including any bank, freshwater wetland, coastal wetland, beach, dune, tidal flat, marsh or swamp bordering on the ocean; any estuary, creek, river, stream, pond, lake; land under any of the water bodies listed; land subject to tidal action, coastal storm flowage, or flooding; and riverfront areas in the

Commonwealth of Massachusetts - In addition, a 100-foot buffer zone around any fresh water or coastal resource listed above is subject to jurisdiction.
Applicability: Work in or near a wetland resource is subject to the provisions of the WPA. Some reservoir maintenance activities are exempt from the requirement for permitting under the WPA. The text of the WPA states that activities conducted by water purveyors at public water supplies that involve maintaining, repairing or replacing, but not substantially changing or enlarging an existing and lawfully located structure or facility used in the service of the public and used to provide water are exempt from the provisions of the WPA and its regulations. Contact the local Conservation Commission where the project is proposed or the regional DEP Wetlands Program to discuss the exemption. File a Request for Determination of Applicability fully describing the proposed work, and seek a negative Determination of Applicability from the Conservation Commission finding that the proposed work is exempt.

Maintenance work that is not exempt under the Act may qualify as a limited project under 310 CMR 10.53(3)(i) of the WPA regulations. An Order of Conditions must be obtained from the local Conservation Commission. Work that may quality as a limited project includes maintenance, repair and improvement (but not substantial enlargement) of structures, including dams and reservoirs and appurtenant works to such dams and reservoirs...which existed on the effective date of April 1, 1983. When water levels are drawn down for the work, water levels that existed immediately prior to such projects being undertaken shall be restored upon completion of the work. A new Notice of Intent need not be filed for the restoration of the water level.
Forms: www.state.ma.us/dep/brp/ww/wwforms.htm
Website: www.state.ma.us/dep/brp/ww/rpwwhome.htm **Contact:** DEP Wetlands Program, 617-292-5695

Public Waterfront Act, Chapter 91, 310 CMR 9.00, Waterways Regulations.

Jurisdiction: The Chapter 91, or Waterways, Program primarily regulates activities on filled and flowed tidelands of the Commonwealth; however it also regulates some activities in Great Ponds, including dredging.
Applicability: If proposed work is occurring in a Great Pond a Chapter 91 permit may be required. A list of Great Ponds can be found at www.state.ma.us/dep/brp/waterway/research.htm#ponds.
Forms: Chapter 91 Waterways License, Simplified License, Permits, Amendments at www.state.ma.us/dep/appkits/forms.htm.
Website: www.state.ma.us/dep/brp/waterway/waterway.htm.
Contact: DEP Waterways Program, 617-292-5615.

Mass. Forest Cutting Act, Chapter 132, sections 40-51

Jurisdiction: Chapter 132 requires the issuance of licenses for certain forest cutting practices.
Applicability: Timber harvesting on both public and private forestland. The Act regulates any commercial timber cutting of wood products greater than 25 thousand board feet or 50 cords on any parcel of land at any one time. Refer to the Act for exemptions.
Forms: For non-exempt cutting, the Act requires the filing of a Forest Cutting Plan with the Department of Conservation and Recreation and the local Conservation Commission. A blank Forest Cutting Plan is available on the web site or by calling the Boston or regional offices.
Website: www.state.ma.us/dem/programs/forestry/contact.htm
Contact: Massachusetts Bureau of Forestry, Department of Conservation and Recreation, 617-626-1250

U.S. Army Corps of Engineers Permits, RIVERS AND HARBORS ACT OF 1899 (SECTION 10); CLEAN WATER ACT (SECTION 404); MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT, (SECTION 103); MASSACHUSETTS PROGRAMMATIC GENERAL PERMIT

Jurisdiction: Construction or placement of structures, dredging, and dredged material in U.S. waters.
Applicability: Any project in or affecting the waters of the United States must comply with the conditions of the Massachusetts Programmatic General Permit (PGP) or, in the case of larger projects, the conditions of an Individual Permit.
Forms: PGP - None; Individual - ENG Form 4345 at www.nae.usace.army.mil.
Website: www.nae.usace.army.mil
Contact: U.S. Army Corps of Engineers, New England District, Regulatory Branch, 978-318-8338 or 800-362-4367; New York Office, covering the Hudson and Housatonic basins, 716-879-4410

6. Watershed Protection

Implementing **watershed protection** can reduce the amount of nutrients and other contaminants that cause water quality issues and excessive plant growth. Water supply protection is the responsibility of the public water system, but it often is a community effort. The following groups may be able to help. Publications are available from DEP at www.state.ma.us/dep/brp/dws or by calling 617-292-5727.

Who: **Residents, Businesses, Municipal Agencies, Schools**
What: reduce the use of fertilizers for lawn care; dispose of pet wastes and car care products properly; and maintain septic systems
Resource: *Residents Protect Drinking Water*, *Businesses Protect Drinking Water* (DEP, July 2003), *Non-point Source Runoff Cards* (Lawn Fertilizers, Pet Waste, Automotive Leaks, Washing Automobiles)

Who: **Farmers; Backyard Hobbyists**
What: reduce runoff of soils by establishing vegetative buffers, keep animals out of water resources and manage manure to avoid runoff
Resource: *On-Farm Strategies to Protect Water Quality – An Assessment & Planning Tool for Best Management Practices* (Department of Agricultural Resources, December 1996), *Horsekeeping Best Management Practices Brochures* (DEP, May 2001, Series of 9)

Who: **Department of Public Works (DPW)**
What: conduct regular street sweeping; install stormwater control devices; clean out catch basins
Resource: *DPWs Protect Drinking Water* (DEP, July 2003)

Who: **Planning Boards or other Site Plan Review Authorities; local Enforcement Officers**
What: require siltation controls at development projects, develop performance standards for various projects, pass a by-law that restricts land uses within Zone A that might have negative impacts on a reservoir
Resource: *Planners Protect Drinking Water* (DEP, July 2003)

Who: **Boards of Health**
What: address septic issues; support performance standards for development projects
Resource: *Boards of Health Protect Drinking Water* (DEP, July 2003)

Who: **Watershed Organizations & Other Community Groups**
What: assist with water supply protection projects, adopt stream segments, stencil catch basins
Resource: *Massachusetts Volunteers Guide for Surveying a Lake Watershed and Preparing an Action Plan* (DEP, 2001)

Who: **Public Water Systems**
What: educate the public about their role in water supply protection; post water supply protection signs; inspect the watershed and keep aware of changes and proposed development; comment to local boards reviewing proposed development; develop a watershed protection plan; encourage conservation restrictions or easements for water supply protection; establish a local water supply protection committee or other partnerships that can provide a broad network of help in promoting and implementing protection in a community
Resource: *Water Suppliers Protect Drinking Water* (DEP, July 2003), *Developing a Local Surface Water Supply Protection Plan* (DEP, updated May 2000), DEP's *Model Conservation Restrictions for Zones I & II* (can be modified for watershed protection)

Conditions Likely to be Included in a 401 Water Quality Certification

The 401 Water Quality Certification is likely to require some or all of the following measures be taken to minimize impacts of maintenance activities. Take all steps necessary to assure that the proposed activities will be conducted in a manner that will avoid violations of the anti-degradation provisions of the Massachusetts Surface Water Quality Standards, 314 CMR 4.00, that protect all waters, including wetlands. Prior to the start of in-water work, notify the Department of any proposed change(s) in plans that may affect waters or wetlands. The Department will determine whether the change(s) require a revision to this Certification. Disposal of dredged material into water/wetland is subject to DEP approval. Erosion control measures need to be in-place prior to commencement of the work and need to be maintained until all disturbed areas have been stabilized. All disturbed or exposed soil surfaces need to be temporarily stabilized within thirty days of disturbance or exposure.

It is likely that the Certification will contain a time-of-year restriction on dredging activities or other silt producing activities. For example, a no-work window might be imposed during migration of anadromous/catadromous fish, or to protect the spawning and/or larval development of a particular species. The time-of-year recommendations are made by the Massachusetts Department of Fish & Game or the Massachusetts Division of Marine Fisheries. Prior to stream diversion or reservoir drawdown, the permittee should contact the Massachusetts Department of Fish & Game (617-626-1591) to ascertain whether a permit is required. At least ten days prior to stream diversion or reservoir drawdown the permittee must notify, in writing, the Massachusetts Department of Fish & Game of their intent to drawdown [Attention: Director, 251 Causeway Street, Suite 400, Boston, MA 02114-2152].

Dredging Best Management Practices

The protection of water quality during dredging activities is an important aspect of planning any maintenance project. Failure to do so may cause elevated levels of suspended sediment resulting in direct impacts to fish, shellfish and other aquatic species.

When planning your project you should first consider performing work in-the-dry. A variety of techniques exist to allow segregation of the work area from the rest of the waterbody, including: simple drawdown using existing control structures, installation of a light-weight, portable dam structure, the use of water-filled dams, the creation of cofferdams using sheetpiling, employing a flume to route water around the work area, or bypass pumping. In slow moving waters, the work area might be surrounded with silt curtains to restrict the transport of suspended sediment from the immediate work area. Effective erosion control techniques should be employed in any area of disturbed bank or shore to prevent landside activities from negatively affecting water quality.

The project should be scheduled to avoid times of the year when aquatic species may be particularly sensitive to increases in suspended sediment levels. For example, during winter the trout eggs incubating on the stream-bed can be easily suffocated by a thin-layer of sediment being deposited on the egg mass.

Contact Information

For more information, please contact the Wetlands Program or Drinking Water Program in DEP's regional offices or the Water Quality Certification Program in DEP's Boston office.

Northeast Regional Office	617-654-6500	**Central Regional Office**	508-792-7650
Southeast Regional Office	508-946-2700	**Western Regional Office**	413-784-1100
Water Quality Certification Program	617-292-5695		